

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Sub D1
C1

1. (currently amended) A method for determining the position of a medical instrument introduced into an object to be examined and for imaging the vicinity of the medical instrument, comprising the steps of

displaying a survey image of the object to be examined, the survey image of the object being stored in a memory and including indications of markers on the patient;

determining the position of the medical instrument within the object to be examined by a localization device that is arranged at the an end zone of the medical instrument, the end zone comprising a portion of the medical instrument that is to be introduced into the object during use of the medical instrument,

acquiring image information of the vicinity of the medical instrument, at the same time as said step of determining, using an image acquisition device arranged on the medical instrument,

reproducing the position of the medical instrument in a the survey image of the object to be examined on the basis of the position determined and the markers on the patient indicated in the survey image, and

displaying images of the vicinity of the object to be examined which are associated each time with the relevant position on the basis of the image information acquired.

2. (previously presented) The method as claimed in claim 1, wherein the localization device comprises at least one magnetic field sensor whose position is determined by an external measuring device.

3. (previously presented) The method as claimed in claim 1, wherein the localization device comprises at least one active or passive microcoil whose position is determined by a magnetic resonance device.

4. (previously presented) The method as claimed in claim 1, wherein the localization device comprises an ultrasound sensor.

5. (previously presented) The method as claimed in claim 1, wherein the medical instrument consists at least partly of a material that can be detected by one of an ultrasound device or a magnetic resonance device.

6. (previously presented) The method as claimed in claim 1, wherein the image acquisition device is an ultrasound device.

7. (previously presented) The method as claimed in claim 1, wherein the image acquisition device comprises an optical coherence tomography device.

8. (previously presented) A The method as claimed in claim 1, wherein the image acquisition device comprises an MR device.

9. (previously presented) The method as claimed in claim 1, wherein the image acquisition device comprises an endoscope.

10. (currently amended) A device for determining the position of a medical instrument introduced into an object to be examined and for imaging the vicinity of the medical instrument, which device includes:

a memory including a stored image data set defining a survey image of the object to be examined including an indication of markers on the patient;

localization means for determining a position of an end zone of a medical instrument, the end zone comprising a portion of the medical instrument that is to be inserted within the object to be examined during use of the medical instrument,

a localization device being arrangeable in ~~an~~ the end zone of the medical instrument that is to be introduced, ~~the end zone being a part of the medical instrument that is introduced into the object during use of the medical instrument,~~

imaging means for the acquisition at the same time of image information concerning the vicinity of the medical instrument,

an image acquisition device arrangeable on the end zone of the medical instrument, and

data processing and display means for displaying the survey image of the object to be examined, determining the position of the localization device, and displaying the position of the medical instrument in a the survey image of the object to be examined based on the determined position of the localization device and the markers on the patient indicated in the

survey image, the data processing and display means further comprising means and for determining and displaying images of the vicinity of the object to be examined, wherein said images are based on the image information acquired.

11. (currently amended) A medical instrument to be introduced into an object to be examined, including:

an instrument body having a base section that remains external to the object during use, an end zone that is to be introduced into the object during use of the medical instrument;

a localization device which is arranged in ~~an~~ the end zone of the medical instrument that is to be introduced so as to determine the position of the medical instrument within the object to be examined, ~~the end zone of the medical instrument being introduced into the object during use of the medical instrument,~~ and an image acquisition device for acquiring at the same time image information concerning the vicinity of the medical instrument wherein, the position of the localization device determined is used to determine the position of the medical instrument in the object to be examined, and the image information acquired is used to form and display images of the vicinity of the object to be examined.

12. (currently amended) The medical instrument as claimed in Claim 11, wherein the medical instrument ~~(3)~~ is a flexible catheter.

13. (previously presented) A computer readable medium storing a computer program for executing the method as claimed in claim 1 during execution of the computer program by a computer.

14. (previously presented) A computer readable medium storing a computer program for controlling a device as claimed in claim 10 during execution of the computer program by a computer.

15. (previously presented) A computer readable medium storing a computer program for controlling a medical instrument as claimed in claim 11 during execution of the computer program by a computer.

16. (new) The method as claimed in claim 1, further comprising the step of correcting the measured position data in response to cardiac motion detected by a electrocardiogram device.

17. (new) The device as claimed in claim 10, further comprising an electrocardiogram, said data processing and display means comprises means for correcting the determined location of the end zone in response to cardiac motion determined by the electrocardiogram.

18. (new) The medical instrument as claimed in claim 11, comprising a further section between the first section and the end zone that is flexible.

19. (new) The method as claimed in claim 1, further comprising the step of acquiring the survey image by one of magnetic resonance imaging, computed tomography, 3-D rotational X-ray and ultrasound techniques.

20. (new) The method as claimed in claim 19, wherein said step of acquiring the survey image includes acquiring a four-dimensional image data set having a temporal resolution including image data sets at different instants during cardiovascular motion phases.